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The House Sparrow

(*Passer domesticus*, Linnaeus).

THE Sparrow question is one which is still constantly recurring, as it has done for many years, and as it will continue to do, until reliable evidence of the nature of the bird's food is more accessible for general information than it is at present in this country. The mischief that is done by the Sparrows is easily observable, but excepting in connection with these noticeable devastations, the nature of their food (meaning by this what the adult birds feed on throughout the year, and what the nestlings are fed on) is far from having been as well brought forward as is desirable, and the published records of as much as we know (whether for or against *Passer domesticus*) are neither as well before the public, nor as accessible to those practically concerned, as it would be well for them to be.

When, consequently on the ill-advised introduction by private enterprise of this bird into the United States of America, serious and widespread losses occurred from its destructive habits, an investigation into the nature of its food was set on foot under the direction of the U.S.A. Board of Agriculture, by examination of the contents of many hundreds of Sparrows. These were submitted for identification to qualified members of the Ornithological Division, with final reference to Dr. C. V. Riley, the Entomologist of the Department, and the results were recorded both as to absence and presence of insects, and (where insects were present) their names and the orders to which they belonged were given, together with information as to whether they were of habits helpful or hurtful to the agriculturist, or, as far as was known, neither the one or the other; and these observations were published.* In this country we have also good work on the subject, including observations and examinations made by known agriculturists, ornithologists, and other qualified investigators, comprising records of contents of very many hundred Sparrows, and notes of the results of the absence or presence of the bird in various localities, and for various lengths of time, up to as much as fifteen consecutive years or more; some of these records are given in this pamphlet, in the hope that by gratuitous distribution they may be made generally accessible, and that further observations, also undertaken by *properly qualified hands*, may help to sound views on this important subject.

The most detailed account that is generally accessible of the food of the House Sparrow, during each month of the year in England, is that given by the ornithologist, Mr. J. H. Gurney, of Keswick Hall, near Norwich.† The table from which the following information was prepared shows the con-

* 'The Insectivorous Habits of the English Sparrow.' By. C. V. Riley, Ph.D. [Extracted from 'Bulletin No. I., Div. Ornithology and Mammalogy, U.S. Dept. of Agriculture, entitled "English Sparrow in America."']

† See 'The House Sparrow.' Messrs. W. Wesley & Son, 28, Essex Street, Strand, London. Pp. 11-17.

tents of the stomachs of *six hundred and ninety-four* House Sparrows. The dissections were made by twelve or more qualified observers (names given with the table referred to), in various places, at regular intervals throughout the whole year, the observations being recorded under the heads of "Customary food" and "Occasional food."

FOOD OF ADULT SPARROWS.

JANUARY. *Customary food*.—Corn from stacks and poultry-yards; seeds of all kinds. *Occasional food*.—Refuse corn, maize, and capsules of moss.

FEBRUARY. *Customary food*.—Corn from stacks and poultry-yards. *Occasional food*.—Seeds; buds of gooseberries.

MARCH. *Customary food*.—Corn, wherever they can get it. *Occasional food*.—Young tops of peas, radish, cabbage, and cauliflower; seeds, freshly sown barley, and oats.

APRIL. *Customary food*.—Corn; vegetable matter. *Occasional food*.—Freshly sown barley, and oats; oblong green seeds, not identified; caterpillars.

MAY. *Customary food*.—Corn; vegetable matter; seeds. *Occasional food*.—Young pea-pods and leaves of peas; gooseberry blossoms and young gooseberries; small beetles; caterpillars of the Brimstone Moth, and White Cabbage Butterflies; turnip seed; hay seed; sprouts of young barley half an inch long; pollen of the sycamore and apple; mangold leaves.

JUNE. *Customary food*.—Corn; vegetable matter; seeds of various sorts; peas. *Occasional food*.—Gooseberries and other fruit; lettuces; small beetles; mangold leaves.

JULY. *Customary food*.—Young wheat, barley, and oats; vegetable matter; seeds of various weeds. *Occasional food*.—Peas; small beetles; beans; seeds of wild spinach.

AUGUST. *Customary food*.—Wheat, barley, oats. *Occasional food*.—Seeds of corn, bindweed, knotgrass, &c.; aphides, small beetles, Daddy Longlegs (*Tipula*), caterpillars of *Teras contaminana*, moth of *Crambus culmellus*.

SEPTEMBER. *Customary food*.—Corn; seeds of many kinds, especially the knot-grass, and corn bindweed. *Occasional food*.—Caterpillars; berries; seeds of plantain.

OCTOBER. *Customary food*.—Grain, some of it refuse grain; seeds of many kinds, including knot-grass. *Occasional food* not recorded.

NOVEMBER. *Customary food*.—Grain, seeds of plants. *Occasional food*.—Newly-sown seeds of wheat; small caterpillars.

DECEMBER. *Customary food*.—Grain, principally from stacks. *Occasional food*.—Seeds, maize, sprouting beans.

FOOD OF YOUNG SPARROWS TO THE TIME OF LEAVING THE NEST.

MAY. *Customary food*.—Grains of last year's corn; small beetles; caterpillars. *Occasional food*.—Buds; red spider; hair-worms; small flies.

JUNE. *Customary food*.—Caterpillars of various kinds, up to three-quarters of an inch in length; young wheat. *Occasional food*.—Beetles, large brown Cabbage Moth, wireworm.

JULY. *Customary food*.—Caterpillars; beetles; soft milky grains of wheat and barley. *Occasional food*.—Bluebottle-flies.

AUGUST. *Customary food*.—Caterpillars; beetles; young corn. *Occasional food*.—Small chrysalids.

To the above records Mr. Gurney added the following summary:—

"It may be said that about 75 per cent. of an adult Sparrow's food during its life is corn of some kind. The remaining 25 per cent. may be roughly divided as follows:—Seeds of weeds, 10 per. cent.; green peas, 4 per. cent.; beetles, 3 per cent.; caterpillars, 2 per cent.; insects which fly, 1 per cent.; other things, 5 per cent. In young Sparrows not more than 40 per cent. is corn; while about 40 per

cent. consists of caterpillars, and 10 per cent. of small beetles." . . . " Sparrows should be killed for dissection in the afternoon." . . . " If the Sparrows are caught at night, they have digested their food in a great measure."

Some amount of good is noted by Mr. Gurney as done by Sparrows feeding (in conjunction with other little birds) on seeds of various kinds of weeds, but the extent of benefit received in this way varies greatly according to local circumstances.

In Hardwicke's 'Science Gossip,' 1883 (p. 217), Mr. A. Willis, of Sandas, is noted as having made a series of examinations of Sparrows' stomachs in 1882, and in eighty-seven of these, insects were found in only eight instances.

In an exhibition, by Dr. Edwards Crisp, of 100 stomachs of young Sparrows, before the British Association at Birmingham in 1865, not 5 per cent. of them contained insect food.

Mr. John Cordeaux opened the crops of thirty-five young Sparrows of various ages, and on an average found two parts of soft grain and one part of insects.

The observations of Col. Champion Russell, of Stubbers, near Romford, Essex, records the examination of the contents of the stomachs of Sparrows shot over a wide extent of country during fifteen years.* The following are extracts from Col. Russell's remarks :—

" The food in the old ones was almost all corn during the whole year; green peas were also found in them in summer; and in May and June, when corn is scarce, a few wild seeds, chiefly of grass. No insect has been found by me in a Sparrow between September and March. I have not often found one at any season (particularly between June and March) in a Sparrow old enough to feed itself, and have very seldom found any number of insects in one, even when corn could scarcely be got."

The following remarks bear on a very important phase of Sparrow feeding. Col. Russell observed :—

" To prove that Sparrows are really useful, it is not enough to show that they destroy some injurious insects, but it must also be proved that, in their absence, other birds would not destroy them at least as effectually. This can be found out only in one way, by banishing the Sparrows from a place for some years."

This Col. Russell did, his place being a fair specimen of the country, that is, having flower and kitchen gardens, shrubberies, orchard surrounded by meadows, with corn-fields all round; and all birds excepting Sparrows were let alone. The result was, that after the almost total absence of Sparrows from his garden for many years, everything seemed to do better than elsewhere, many things much better. Young peas needed no protection from birds; green peas were not picked out of the pods, excepting one year in the fifteen, when some other birds devoured the late peas, and the gooseberry-buds were not picked out.

In regard to special examination, Col. Russell noted :—

" Fifty old Sparrows, and Sparrows which could feed themselves, were killed one summer about my buildings and garden with food in their crops. This food, carefully examined (as in all cases, with a lens), was found to be corn, milky, green, and ripe; and sometimes green peas from my garden. Only two small insects were found in the whole number. The food in them has been much the same every year."

" On the whole, the deduction from the food-test, during fifteen years, seems to be that the Sparrows are useless, and that the insects which would be given to their young by them, if they were allowed to live in numbers about my premises, would be so much food taken, when they most want it, from better birds which live entirely, or nearly so, on insects, and thus keep them, especially caterpillars, down so effectively in the absence of Sparrows, that, when a chance pair of these come and build, there are few of their favourite sorts for them."

* See 'The House Sparrow' (Wesley & Son), p. 22-24.

The above paragraph is inserted in italics, on account of its importance as the result of fifty years' observation of Sparrow life, to which, during fifteen years, examination of their contents was added,—this by a landed proprietor in a locality well suited to observation, and so well known for his trustworthy researches that he was examined on the Wild Birds Parliamentary Committee; and his records, together with those of Mr. Gurney and two other observers, are officially noted by the U.S.A. Department of Agriculture as "an important European work to be mentioned in connection with 'the House Sparrow.'"

Much of Col. Russell's collection of contents of Sparrows was long preserved in spirit or preservative medium, in small glass jars, and clearly proved the enormous proportion of wheat grains contained.

With regard to detailed account of amount and nature of the insect contents found in stomachs of Sparrows, the official account of the U.S.A. Board of Agriculture, prepared under the direction and verification of Dr. C. V. Riley, Entomologist to the Department, gives the fullest information of any I am aware of up to date.*

This report is based on examination of stomach-contents of 522 Sparrows by Dr. Hart Merriam, Ornithologist to the U.S.A. Department of Agriculture. Of these, which were examined in the Ornithological Division, ninety-two alone were found to contain insects. By stomach-contents is included, not only what is taken from the crop, but also that taken from the gullet and the mouth. Of the above 522 stomachs, 338 of birds killed on ground (avoiding roads) near Washington were in many cases examined within an hour or two after death; the remaining 184 were sent to Washington in alcohol.

The report gives first a list of the specimens containing insects, giving age of Sparrow (as adult or young), also sex, date of death, locality where killed, and name of insects found. This is followed by a very important section, which we much need similar details of here, namely, the "HABITS OF THE INSECTS CONCERNED." In this the insects found are classed under heading of the (*scientific*) names of the orders to which they belong, as whether beetles, flies, moths and butterflies, or others; with notes of their life-history or habits where known, so that it can be told whether the insect is injurious or helpful, as, for instance, in the case of a species of *Tiphia*, of which one kind destroys grubs of May-beetles, and *Myzine sexcincta*, of similar habits; of the first of which remains occur in 10 stomachs; of the second, in 30. Also notes are given of presence, presumably unimportant, of kinds of which little but the name is known. All of the principal orders of insects were represented, namely, *Hymenoptera*, that is, bees, ants, parasite wasps, &c., in 59 stomachs; *Coleoptera*, beetles, in 53; *Orthoptera*, locusts, &c., in 9; *Lepidoptera*, as moths and butterflies, in 8; *Hemiptera*, as plant-bugs, &c., in 6; *Neuroptera*, as (in this case) some stone-flies and Psoci, in 3; and *Diptera*, as blue-bottle and house-flies, in 2. Besides these, *Arachnidæ*, as spiders or parts of spiders, or spider allies, were found in 7 stomachs.

Most of the insects noted were in developed, that is, complete, not larval or pupal condition; and it is mentioned in the summary that the insects taken from the Sparrows were mostly of harmless species. Attention is also drawn to the fact that during the year in which most of the birds were shot at Washington, the shade-trees there were suffering from insect infestation; and of the four different species present, only two specimens of one of these kinds were found in the Sparrows' stomachs investigated.

Many other records of observation, both American and British, are given in the 'Bulletin,' and one of the concluding sentences of Dr. Riley's Report is:—"Finally, the examinations taken as a whole show how thoroughly *graminivorous* or vegetarian the Sparrow is as a rule."

* See 'Insectivorous Habits of the English Sparrow (*Passer domesticus*), by C. V. Riley, Ph.D.' From Bulletin No. I., Div. of Ornithology and Mammalogy, Dept. of Agriculture, entitled, "The English Sparrow in America."

At the meeting on April 21st, 1885, at Washington, of the Council of the American Ornithologists' Union, the Committee rendered its final report of considerations as to the serviceableness or otherwise of the English Sparrow, these being based on information received in reply to their circulars of enquiries sent to localities of the entire United States and Canada.*

The report, which contains a great amount of solid information, is too long for insertion here; but relatively to the points now under consideration, the united "verdict of the ornithologists," formally given, is "that there is an overwhelming mass of testimony to the effect that the Sparrow drives away certain of our most valued species of native birds"; and in reply to the question on the circular, "Is it an insect-eater or a seed-eater?" that every reply to this question, *based on dissection*, agrees in attributing to this bird a diet almost wholly vegetable.

Lists and Observations of Birds which destroy Crop and Orchard Insects in England, and notes of the lessening of the number of wholly insectivorous Birds by Sparrow attack.

In our country we have much trustworthy observation of damage from Sparrows driving away the truly insectivorous birds, notably Swallows and Martins. From my own personal observations, I can speak of Martins, which built plentifully under caves, being driven off, so that nesting ceased consequently on increased Sparrow presence; and the following notes, as far as initials on page 6, are from observations sent to myself (E. A. O.).

In 1887, I received an observation † from Mr. Champion Russell, of Baldwins, and Stubbers, near Romford, Essex, of presence of Sparrows in droves or thousands at the first named place, where they had not been kept in check, but *not* of Martins; whilst at Stubbers, about a mile off, where Col. Champion Russell (see p. 3) had kept the Sparrows in check for many years, there was presence of Martins in hundreds.

At another locality—the Moat House, Leake, near Boston, Lincs.—where the insects were "a serious pest," the occupant took my advice, and pretty well destroyed the Sparrows; consequently Swallows and Martins re-established themselves, and the pest of insects ceased to be destructive in garden and orchard. Mr. Christy, of Boyton Hall, Chelmsford, reported to the same effect, that as soon as the Swallows and Martins had built their nests the Sparrows drove them off, and laid their own eggs in the harried nests, and "as a consequence we swarm with all kinds of noxious gnats and flies."

In reply to an enquiry I wrote to Mr. J. H. Gurney, of Keswick Hall, near Norwich, as a skilled ornithologist, he mentioned "that he could testify from personal observation that the Sparrows drive away the Martins, and that he considered *the undoubted decrease of this species in the British Isles to be due to their being prevented from nesting by the Sparrows.*"

In regard to what bird-help we may look to for ridding us of insect enemies in the absence of the Sparrow, the question may be satisfactorily answered by reference to our various excellent standard works on British Birds; but for practical purposes the following notes, for which I was indebted to Mr. F. Norgate, of Sparham, near Norwich (who has devoted particular attention to the subject), give some useful points.

Amongst various kinds of birds serviceable generally on forest trees, apple trees, and fruit bushes, Mr. Norgate mentions the Titmice, including the Blue, Cole, Marsh, Long-tailed and Great Tit (and of these the Blue Tit may be especially observed at work amongst Aphides on gooseberry bushes); also the Warblers, Woodpeckers, Nuthatch, and Tree-

* For Report given in full, see 'Forest and Stream' for Aug. 6th, 1885 ('Forest and Stream' Publishing Co., 39, Park Row, New York, U.S.A.)

† For this and the three following observations, see the 'Twelfth Annual Report on Injurious Insects,' pp. 99, 100. Simpkin, Marshall & Co., Stationers' Hall Court, London, E.C. Price 1s. 6d.

creepers. The Lesser Spotted Woodpecker is noted as especially frequenting the apple ; the Gold-crested Regulus frequents the Scotch pine, spruce, and other *Coniferæ* ; the Bearded Tit, Yellow Wagtail, Titlark, Wren, Cuckoo, and Water Rail are mentioned as serviceable in osier-beds and reeds, and in marsh-hay. Amongst gooseberry, currant, and raspberry bushes the Titmice and Warblers, the Wren and the Cuckoo, are noticed as of especial use.

Amongst cabbage and turnip crops, the Partridge, Spotted Flycatcher, Swifts, Swallows, and Martins are of use ; and on grass (besides the Warblers, Swallows, Swifts, Martins, and Partridge before mentioned), the Wagtails, Pipits, and Starlings are all serviceable. The Cuckoo is of especial service as eating *hairy* larvæ, and the Flycatcher as destroying white butterflies.

During the twenty years in which I have received notes from agriculturists on measures of prevention of insect attacks, many other kinds of birds have been mentioned as serviceable, and especially the Rook (when not in such overwhelming numbers as to do as much harm to the crop as the insects in their work of extirpation) ; and in connection with the great attack of Antler Moth in the south of Scotland in 1894, I had observations from one district of the stomachs of the Snow Buntings being full of the caterpillars in the winter.

In the case of the disastrous infestation of Diamond-back Moth in 1891, in reply to my official request for information as to what birds were observed as helpful in clearing the caterpillars from the infested turnip and cabbage leafage, I received notes of presence of the following kinds :—Rooks, Crows, Seagulls, Peewits, Grey Plovers, Green or Golden Plovers, Starlings, Linnets, Green Linnets or Greenfinches, Chaffinches, and Yellowhammers ; but amongst all the returns sent me, which ranged along a wide band of country from Dover to Aberdeen, I only find three replies favourable to Sparrow help, and one of these couched in doubtful language. On the other side, it was mentioned that the Sparrows were occupied with early oats, and had no time to spare for caterpillars ; also the Sparrows and smaller birds preferred the barley ; and that the Sparrows were too numerous, and were against the Swallows.*—E. A. O.

The above notes are only brought forward to show that, independently of the Sparrow (which is often brought forward as if our safety from insect ravage lay in the keeping of this one species), we are excellently supplied with a watchful and efficient bird-police, able and willing to take the insect robbers of our fields and gardens in charge, and helpful, without raising undue levies for the supply of overwhelmingly increasing progeny, and without dispossessing far better tenants from their houses.

The rapid rate of increase of the Sparrow is one of the reasons why protection places us in such a difficult position in saving our crops from its ravage. One pair of these birds frequently produces more than twenty young ones in the season, three or four broods of six or seven each being stated to be not unusual ; and a very little calculation will show that in six years, where no disaster betides them, the progeny of *one single pair will amount to millions*, as evidenced by the rapidity with which the small number imported have spread over the United States, Australia, and New Zealand.

We have *evidence* of the broad-scale losses caused by introduction of the Sparrow, in the devastations brought about by its introduction into the United States, Canada, and Australia ; and we have *evidence* in our own country of the saving of crops and restoration of helpful birds by systematic destruction of this one kind ; but we have no *reliable* records of injurious effects being caused by enforced banishment or destruction of the Sparrow.

* Injury by Sparrow devastation is a constantly recurring matter brought before me, and by way of one special observation, I had a record in 1884 from Mr. Gaskell, then Secretary of the Wirral Farmers' Club, Birkenhead, that "The judges of our farm crops estimated the damage done by Sparrows to be one-third in some districts they judged crops in."

For many years mention has been made, by those who consider Sparrow preservation desirable, of great disasters following on some not clearly detailed methods of extermination, or expulsion of the Sparrow in the countries of Hungary and Baden, and also in the territory of Prussia; and, nearer our own time, in Maine, and near Auxerre in France.

With regard to the three first named, a record will be found in our own 'Times' for Aug. 21st, 1861, p. 7. This gives a translation from the French paper, the 'Moniteur,' of a report on four petitions relatively to preservation of small birds which had been presented to the French Corps Legislatif. The report contains much information, but in respect to the emigrations of the Sparrow because the bird was aware of the plots that were being laid against its safety, the statements cannot be said to carry any weight. The following extract is inserted, as it is important to agriculturists to have a correct copy of the baseless statements they are sometimes called on to believe. The passage is as follows:—

"Now, if the facts mentioned in the petitions are exact, according to the opinion of many this bird ought to stand much higher than he is reputed. In fact, it is stated that a price having been set upon his head in Hungary and Baden, the intelligent *prosperity* left those countries; but it was soon discovered that he alone could manfully contend against the cockroaches and the thousand winged insects of the lowlands, and the very men who offered a price for his destruction offered a still higher price to introduce him again into the country." "Frederick the Great had also declared war against the Sparrows, which did not respect his favourite fruit the cherry. Naturally the Sparrows could not pretend to resist the conqueror of Austria, and they emigrated; but in two years not only were there no more cherries, but scarcely any other sort of fruit—the caterpillars ate them all up; and the great victor on so many fields of battle was happy to sign peace at the cost of a few cherries with the reconciled Sparrows."

With regard to the destruction and consequent results stated to have occurred in Maine and near Auxerre, at present our very best endeavours have failed to find that the statement of this having occurred rests on any authoritative basis; and the only definite notice of the subject which we have found is, that in the neighbourhood of Auxerre there was an injudicious destruction of small birds generally, not only of *Passer domesticus*.*

SUMMARY.

In the present space it is impossible to enter fully on this important national matter, but still we find, in addition to what all concerned know too well already of the direct and obvious losses from Sparrow marauding, that there is evidence of the injurious extent to which they drive off other birds, as the Swallows and Martins, which are much more helpful on account of their being wholly insectivorous; also that, so far from the Sparrow's food being wholly of insects at any time of the year, even in the young Sparrows only half has been found to be composed of insects; and of the food of the adults, it was found from examination that in a large proportion of instances no insects at all were present, and of these many were of kinds that are helpful to us or harmless. Also it is well on record that there are many kinds of birds which help us greatly by devouring insects, and that where Sparrows have systematically been destroyed for a long course of years all have fared better for their absence; and also attention should be drawn to the enormous powers of increase of this bird, which under not only protection, but to some extent absolute fostering, raises its numbers so disproportionately as to destroy the natural balance.

Here as yet we have no movement beyond our own attempts to preserve ourselves, so far as we legally may, from Sparrow devastations; but in the United States of America (on the evidence of which I have given a part) the Association of the American Ornithologists gave their collective recommenda-

* See 'The House Sparrow at Home and Abroad,' by Thomas G. Gentry, p. 26. Philadelphia, 1878.

tion that all existing laws protecting the Sparrow should be repealed, and bounties offered for its destruction ; and the law protecting the Sparrow has been repealed in Massachusetts and Michigan. Dr. Hart Merriam, the Ornithologist of the U.S.A. Board of Agriculture, also officially recommended immediate repeal of all laws affording protection to the English Sparrow, and enactment of laws making it penal to shelter or harbour it ; and Prof. C. V. Riley, Entomologist to the Department, similarly conveyed his views officially as to it being a *destructive bird, worthless as an insect killer.*

In Canada, on Oct. 6th, 1888, at the Annual Meeting of the Ent. Soc. of Ontario, Mr. J. Fletcher, Entomologist of the Experimental Farms of the Department, strongly advocated the destruction of the Sparrow ; and in reply the Hon. C. W. Drury, Minister of Agriculture (who attended the meeting as head of the Agricultural Department of Ontario), stated "that this destructive bird was no longer under the protection of the Act of Parliament respecting insectivorous birds, and that every one was at liberty to aid in reducing its numbers."

Reasoning on the same grounds as to procedure in this country, we believe that similar action is, without any reasonable cause for doubt, called for here. The amount of the national loss, by reason of ravaged crops and serviceable birds driven away, may be estimated, without fear of exaggeration, at from one to two millions a year.

We do not pretend to offer suggestions as to what may be considered fitting to do by Government authority, but much of their own protection lies in the hands of farmers themselves ; and Sparrow clubs, well worked, and always bearing in mind that it is only this one bird that is earnestly recommended to their attention, would probably lessen the load to a bearable amount ; and we believe that subscriptions, whether local or from those who know the desirableness of aiding in the work of endeavouring to save the bread of the people from these feathered robbers, would be money wisely and worthily spent.

The foregoing pages give only the main points of the subject, but a detailed account dealing with all necessary points is now well advanced towards completion and publication.

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August, 1897.

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